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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,565	10/20/2003	Paul Underbrink	ST02010USU (246-US-U1)	8409
7590 Jennifer Hammond The Eclipse Group 10453 Raintree Lane Northridge, CA 91326			EXAMINER FOTAKIS, ARISTOCRATIS	
			ART UNIT 2611	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/689,565	Applicant(s) UNDERBRINK ET AL.	
	Examiner Aristocratis Fotakis	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/12/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1 - 24 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 – 24 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. Independent claim 1, 9 and 17, recite of a processor that identifies a CW jamming signal by employing a predetermined fixed code for a PRN code. However, the use of PRN codes by the processor is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 2611

Claims 5, 13 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 5, 13 and 21 recite the limitation "the code for all ones" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

Art Unit: 2611

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 6, 9, 14, 17 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norman et al. (US 6,282,231) in view of Turetzky et al (US PG-Pub 2002/0025828).

Re claim 1:

As shown in figure 1, Norman et al. disclose a radio receiver apparatus in receipt of a spread spectrum radio signal having a first signal tracking channel and a second signal tracking channel (column 7, lines 20-32), comprising:

- a demodulator (see column 4, lines 51- column 5, lines 1-2) that demodulates a first signal in the spread spectrum radio signal into the first signal tracking channel and a second signal in the spread spectrum radio signal into the second signal tracking channel;

- a crosscorrelator (block 40 in figure 1) connected to the first tracking channel and the second tracking channel;

Art Unit: 2611

a signal processor (blocks 40 and 50 in figure 1) that identify a carrier wave jamming signal with the crosscorrelator that is in a mode to identify CW jamming signals (Col 7, Lines 14 – 27, 51 – 57 and Col 8, Lines 29 – 55);

a tracker (block 50 in figure 1) that tracks the carrier wave jamming signal; and

a signal canceller (block 60 in figure 1) subtracts the carrier wave jamming signal from the spread spectrum signal.

However, Norman does not specifically teach of the signal processor that identifies a carrier wave jamming signal with the crosscorrelator that is in a mode to identify carrier wave jamming signals and employs a fixed predetermined code for a pseudo random number (PRN) code.

Turetzky teaches of a method that relates in general to GPS receivers, and in particular to systems, methods, and apparatuses for reducing or eliminating auto-correlation or cross-correlation in weak CDMA signals in the presence of strong CDMA signals (Paragraph 0001). Turetzky teaches of a signal processor that identifies a carrier wave jamming signal with the crosscorrelator that is in a mode to identify carrier wave jamming signals and employs a fixed predetermined code (local code, Paragraphs 0032 – 0040, 0042) for a pseudo random number (PRN) code (Paragraphs 0032 – 0040).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a fixed predetermined code in order to determine the proper signal to lock onto within the sampled signal from the sampler.

Re claim 9:

As shown in figure 1, Norman et al. disclose a method of removing a carrier wave jamming signal from a spread spectrum signal having a first signal tracking channel and a second signal tracking channel (column 7, lines 20-33), comprising:

- demodulating a first signal in the spread spectrum radio signal into the first signal tracking channel and a second signal in the spread spectrum radio signal into the second signal tracking channel (see column 4, lines 51- column 5, lines 1-2);

- correlating the first tracking channel and the second tracking channel with a crosscorrelator (block 40 in figure 1);

- changing the crosscorrelator from a cross-correlation identification mode to a carrier wave jamming identification mode (Col 7, Lines 14 – 27, 51 – 57 and Col 8, Lines 29 – 55);

- computating a product of the first signal tracking channel and the second signal tracking channel to obtain a carrier wave jamming signal (blocks 40 and 50 in figure 1);

- tracking the carrier wave jamming signal (block 50 in figure i); and

- canceling the carrier wave jamming signal from the spread spectrum signal (block 60 in figure 1).

However, Norman does not specifically teach of the signal processor that identifies a carrier wave jamming signal with the crosscorrelator that is in a mode to identify carrier wave jamming signals and employs a fixed predetermined code for a pseudo random number (PRN) code.

Turetzky teaches of a method that relates in general to GPS receivers, and in particular to systems, methods, and apparatuses for reducing or eliminating auto-correlation or cross-correlation in weak CDMA signals in the presence of strong CDMA signals (Paragraph 0001). Turetzky teaches of a signal processor that identifies a carrier wave jamming signal with the crosscorrelator that is in a mode to identify carrier wave jamming signals and employs a fixed predetermined code (local code, Paragraphs 0032 – 0040, 0042) for a pseudo random number (PRN) code (Paragraphs 0032 – 0040).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a fixed predetermined code in order to determine the proper signal to lock onto within the sampled signal from the sampler.

Re claim 17: As shown in figure 1, Norman et al. disclose a receiver in receipt of a spread spectrum radio signal having a first signal tracking channel and a second signal tracking channel (column 7, lines 20-33), comprising:

demodulation means (see column 4, lines 51- column 5, lines 1-2) for demodulating a first signal in the spread spectrum radio signal into the first signal tracking channel and a second signal in the spread spectrum radio signal into the second signal tracking channel;

correlation means for correlating the first tracking channel and the second tracking channel (block 40 in figure 1);

computation means for computing a product of the first signal tracking channel and the second signal tracking channel to obtain a carrier wave jamming signal (blocks 40 and 50 in figure 1), when the correlation means is in a carrier wave jamming identification mode (Col 7, Lines 14 – 27, 51 – 57 and Col 8, Lines 29 – 55);

means for tracking the carrier wave jamming signal (block 50 in figure 1); and

canceling means that cancels the carrier wave jamming signal from the spread spectrum signal (block 60 in figure 1).

However, Norman does not specifically teach of the signal processor that identifies a carrier wave jamming signal with the crosscorrelator that is in a mode to identify carrier wave jamming signals and employs a fixed predetermined code for a pseudo random number (PRN) code.

Turetzky teaches of a method that relates in general to GPS receivers; and in particular to systems, methods, and apparatuses for reducing or eliminating auto-correlation or cross-correlation in weak CDMA signals in the presence of strong CDMA

Art Unit: 2611

signals (Paragraph 0001). Turetzky teaches of a signal processor that identifies a carrier wave jamming signal with the crosscorrelator that is in a mode to identify carrier wave jamming signals and employs a fixed predetermined code (local code, Paragraphs 0032 – 0040, 0042) for a pseudo random number (PRN) code (Paragraphs 0032 – 0040).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a fixed predetermined code in order to determine the proper signal to lock onto within the sampled signal from the sampler.

Re claims 6, 14, 22:

Norman et al. further teach the spread spectrum radio signal is a position signal (column 7, lines 10-13).

Claims 2-4, 10-12 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norman et al. (US 6,282,231) in view of Heinzl et al. (US 2002/0012411).

Re claims 2, 10, 18:

Norman et al. disclose all of the subject matters in claim 1 above except for a signal generator that generates a replica carrier wave jamming signal having a phase from the carrier wave jamming signal having another phase and subtracts the replica

Art Unit: 2611

carrier wave jamming signal from the spread spectrum signal to cancel the carrier wave jamming signal.

However, Heinzl et al. teach a signal generator that generates a replica carrier wave jamming signal and subtracts the replica carrier wave jamming signal from the spread spectrum signal to cancel the carrier wave jamming signal (page 1, paragraph [0011]).

It is desirable to include a signal generator that generates a replica carrier wave jamming signal and subtracts the replica carrier wave jamming signal from the spread spectrum signal to cancel the carrier wave jamming signal to enable GPS and other RF navigation receivers to be structured flexibly to improve anti-jamming capability. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a signal generator that generates a replica carrier wave jamming signal and subtracts the replica carrier wave jamming signal from the spread spectrum signal to cancel the carrier wave jamming signal to provide improved resistance to jamming signals.

Re claims 3, 11, 19:

Heinzl et al. further teach a signal rotator that rotates the phase of the replica carrier wave jamming signal (page 3, paragraphs [0041] and [0042]).

Art Unit: 2611

Re claims 4, 12, 20:

Heinzl et al. further teach the signal rotator adjusts the phase of the replica carrier wave jamming signal to match the other phase of the carrier wave jamming signal in the spread spectrum signal (page 3, paragraphs [0041] and [0042]).

Claims 7, 8, 15, 16, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norman et al. (US 6,282,23.1) in view of Van Stralen et al. (US 6,621,855).

Re claims 7, 15, 23:

Norma et al. disclose all of the subject matter in claim 1 above except for crosscorrelator is at least a 1024 bit wide correlator.

However, Van Stralen et al. disclose crosscorrelator is at least a 1024 bit wide correlator (column 3, lines 45-50).

It is desirable to have a crosscorrelator is at least a 1024 bit wide correlator to improve the reliability of the detection of timing and frequency estimates especially when the signals are weak (column 11, lines 47-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a crosscorrelator is at least a 1024 bit wide correlator as taught by Van Stralen et al. in the system as taught by Norman et al. to improve the reliability of the detection of timing and frequency estimates (column 11, lines 47-50).

Art Unit: 2611

Re claims 8, 16, 24:

Van Stralen et al. further teach the crosscorrelator includes an at least a 1024 bit wide match filter (column 3, lines 45-65).

It is desirable to have the crosscorrelator further includes an at least a 1024 bit wide match filter to improve the reliability of the detection of timing and frequency estimates especially when the signals are weak (column 11, lines 47-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the crosscorrelator includes an at least a 1024 bit wide match filter as taught by Van Stralen et al. in the system as taught by Norman et al. to improve the reliability of the detection of timing and frequency estimates (column 11, lines 47-50).

Claims 5, 13, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norman and Turetzky in further view of Keller et al (US 2003/0108085).

Re claims 5, 13, 21:

Norman and Turetzky teach all the limitations of claims 1, 9 and 17 as well as the coder (#212) of Turetzky is shifted in time and/or phase to assist in correlation. This shift is typically done by a separate circuit and can be done by a data path executive when the incoming signal is determined to be an auto-correlated or cross-correlated signal (Paragraph 0042). However, Norman and Turetzky do not specifically teach of the local code of being a code of all ones.

Norman et al. further teach the crosscorrelator has a code of all ones for a pseudo random number (PRN) code (column 7, lines 51-53).

Keller teaches of a spread spectrum communication system in GPS using PN coding techniques and, more particularly, to acquiring PN code phase (Paragraph 0002). Global Positioning System (GPS) time is used by each communication systems to achieve shared, near-perfect phase position within a PN decade-code. Phase position refers to the chip position in a PN code beginning with an (major) epoch, and an epoch is defined as the all 1s condition of the state machine of the linear feedback generator that generates the PN code (Paragraph 0031).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a local code of all ones in order to achieve major epoch in a GPS receiver.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aristocratis Fotakis whose telephone number is (571) 270-1206. The examiner can normally be reached on Monday - Thursday 7 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2611

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AF


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